REMARKS

No claim has been amended. Claims 1-8 and 19-21 are pending.

In the Official Action, claims 1-8 and 19-21 were rejected under 35 U.S.C. §101 as allegedly failing to set forth patentable subject matter. In particular, the Examiner alleged that the claims do not provide a "tangible result" since the outcome of the "determining step" allegedly is not used in a disclosed "practical application" or "made available in such a manner that its usefulness in a disclosed practical application can be realized." This rejection is traversed.

Applicant submits that the claimed method accomplishes the practical application of synthesizing pulses so as to generate the pulse envelope for a given excitation profile. In turn, the excitation profile is applied to a two-level quantum system or a subsystem described by the spin domain Bloch equation. As set forth in claim 2, such a system may be a quantum computer system or a spintronics system, or, as set forth in claim 2, such a system may be a magnetic resonance imaging system. Those skilled in the art drive such systems by applying pulse sequences that cause such machines to generate radiofrequency fields specified by the pulse sequences. In accordance with the method, the generated radiofrequency fields desirably correspond to the given excitation profile, thereby allowing the realization of the disclosed "practical application" under 35 U.S.C. §101. Moreover, the resulting pulses are clearly "useful, concrete, and tangible" in that they may be observed and measured and, as just noted, used by, for example, a magnetic resonance imaging system to cause the generation of desired radiofrequency fields that satisfy a given selective excitation profile.

Applicant further submits that the claimed invention does not fall into a judicial exception to statutory subject matter in that the claimed invention does not relate to an abstract idea, a law of nature, or a natural phenomenon. Since the claimed invention does not fall into such a judicial exception, there is no need to determine if a physical transformation of an article of physical object takes place, particularly where, as here, the claimed invention produces a useful, concrete and tangible result.

To summarize, the invention is a method or process and thus falls within an enumerated statutory category under 35 U.S.C. §101. The invention is not an abstract idea, law of nature, or a natural phenomenon and thus does not fall within a judicial exception to

35 U.S.C. §101. Accordingly, it is not necessary to determine if the practical application is by physical transformation and it is not necessary to determine if the claimed invention preempts an abstract idea, law of nature, or natural phenomenon. It is further noted that the claimed method relates to the production of pulses that when applied to a two-level quantum system or a subsystem described by the spin domain Bloch equation causes the generation of a given selective excitation profile, a feat which is clearly useful, concrete, and tangible to those of skill in the art. Withdrawal of the rejection of claims 1-8 and 19-21 under 35 U.S.C. §101 is thus appropriate and is respectfully solicited.

If the Examiner would like further clarification of this matter, she is encouraged to contact Applicant's undersigned representative to discuss any remaining issues (such as the subject matter eligibility guidelines) prior to issuance of a further action.

Applicant appreciates the Examiner's indication that claims 1-8 and 19-21 are allowable over the prior art. In view of the above comments, the present application is believed to be in condition for allowance, and a Notice of Allowability is respectfully solicited.

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